Upland Pasture

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[Existing conditions inventory maps and photographs follow this section]

Introduction

This landscape area is located west of the Kohrs, or "Big Ditch." It consists of rolling, grass covered foothills, and is used for both hay and pasture. It is bordered on the west, south, and north sides by the Grant-Kohrs Ranch property line. This land was added to the Grant-Kohrs Ranch National Historic Site in the 1930s.

Natural Systems and Features

[see Map EC-29 at the end of this section]

The steepest slopes and highest elevations within the ranch occur in this area. Like the benchland on the east side of the river, the upland areas to the west are generally comprised of very deep, well drained soils. Con loams, Varney-Con loams, and the Roy-Shawmut-Danvers complex, the latter of which is found on the hilltops and comprised of a combination of cobbly loam, clay loam, and very gravely clay, are the predominant soils in these fields. Without irrigation, these soils are naturally limited to pasture.

Taylor Creek is the primary drainage corridor in the upland pasture area. This creek is located along the southern boundary of the ranch, and provides irrigation water to the ditches that tap into it. Other intermittent drainage swales drain the gulches, but these are intercepted by the lateral ditches used to irrigate these areas.

Vegetation

[see Map EC-30 at the end of this section]

The dry upland pasture has been used primarily for grazing, and therefore retains much of the character of natural grassland communities (see Photo 3-6-1). These are primarily the bluebunch wheatgrass/western wheatgrass habitat type and the bluebunch wheatgrass/Sandber's bluegrass type.[1]

The most predominant species (plants observed within each of the four dry ranges) during the 2002 Rice and Hardin plant survey include the following (those marked with an asterisk (*) are exotic species): common yarrow (*Achillea millefolium*), crested wheatgrass (*Agripyron cristatum*)*, fringed sagebrush (*Artemisia frigida*), standing milkvetch (*Astragalus adsurgens*), blue grama (*Bouteloua gracilis*), smooth brome (*Bromus inermis*)*, spotted knapweed (*Centaurea biebersteinii*)*, waveleaf thistle (*Cirsium undulatum*), rubber rabbitbush (*Ericameria nauseosa*), shaggy fleabane (*Erigeron pumilus*), cultleaf daisy (*Erigeron compositus*), rough fescue (*Festuca camperstris*), scarlet gaura (*Gaura coccinea*), prairie smoke (*Geum triflorum*), curly-cup gumweed (*Grindelia squarrosa*), broom snakeweed (*Gutierrezia saothrae*), baby's breath (*Gypsophia paniculata*)*, needle-and-thread (*Hesperostipa comata*), little-leaf alumroot (*Heuchera parvifolia*), winterfat (*Krascheninnikovia lanata*), bitterroot (*Lewisia rediviva*), yellow sweetclover (*Melilotus officinalis*)*, plains pricklypear (*Opuntia polyacantha*), Bessey's locoweed (*Oxytropis besseyi*), western wheatgrass (*Agropyron smithii*), longleaf phlox (*Phlox longifolia*), moss phlox (*Phlox muscoides*), sandbergr's bluegrass (*Poa juncifolia*), bluebunch wheatgrass (*Agropyron spicatum*), tall tumblemustard (*Sisymbrium altissimum*)*, Missouri

[1] Peter M. Rice and Janet G. Hardin, "Vascular Plant Survey of Grant-Kohrs Ranch National Historic Site" (Missoula: Division of Biological Sciences, University of Montana, October 2002), 2.

goldenrod (*Solidago missouriensis*), scarlet globemarrow (*Sphaeralcea coccinea*), dandelion (*Taraxacum officinale*)*, spineless horsebrush (*Tetradymia canescens*), and intermediate wheatgrass (*Agropyron intermedium*)*.[2]

The irrigated areas of the upland pasture contain hay grasses, such as smooth brome (*Bromus inermis*), common timothy (*Phleum partense*), Kentucky bluegrass (*Poa pratensis*), red clover (*Trifolium pretense*), Canada thistle (*Cirsium arvense*), crested wheatgrass (*Agropyron cristatum*), and white clover (*Trifolium repens*). All these species are exotic.[3]

Several species of noxious weeds have taken root within the Grant-Kohrs Ranch. Noxious weeds are not only exotic species (non-native to the site), but they are also harmful species because they grow aggressively and out-compete native species for water, nutrients, and space. Noxious weeds can change ecological systems within the landscape and alter relationships that have existed for hundreds of years. The most common and troublesome noxious weed found in the upland pasture is spotted knapweed. These weeds are of concern because they can lower the grazing value of pasture by out-competing the native bluebunch grasses. Negative effects of this weed include the loss of wildlife habitat, reduced livestock grazing capacity, increased soil erosion and topsoil loss, and reduced cropland and farmland production.[4] For a more in-depth discussion of park efforts to control noxious weeds, refer to the pasture/hay fields existing conditions section.

The upland pasture also contains a cluster of very mature and prolific apple trees, which mark the site of an old homestead (see Photo 3-6-2). A row of cottonwoods along the south boundary also mark what is believed to be the entrance road to this home site along Taylor Creek (see Photo 3-6-3).

Spatial Organization
[see Map EC-30 at the end of this section]

The spatial organization of the upland pasture is defined by the topography, fences, and irrigation ditches. The major spaces within this landscape area include **Big Gulch** (66 acres) and **Little Gulch** (29 acres) which are defined primarily by the surrounding hills (see Photo 3-6-4 and Photo 3-6-5). The **Taylor Fields** (109 acres) are defined by the surrounding hills to the north, Taylor Creek to the south, and the boundary fence of the ranch to the east and west (see Photo 3-6-6). In 1995 Upper Taylor Field was re-farmed. This involved plowing, tilling, and planting barley hay.

The dry ranges within the Upland Pasture area are defined by the topography. The **Upper Northwest Range** (100 acres) is the largest. It is located along the northern edge of the boundary fence. **Taylor Ridge Range** (76 acres) is located along the western boundary, whereas **Ridge Road Range** (26 acres) and **Gravel Pit Range** (33 acres) are located along the Kohrs Ditch Road. Both the Gravel Pit Range and Taylor Fields are enclosed by a combination of wood and metal post and wire fencing.

[2] Species location information derived from Janet Hardin, "Plant Species & Locations, GRKO Database, Westside Ranges" (Missoula: University of Montana, Division of Biological Sciences, June 3, 2003).
[3] Species location information derived from Janet Hardin, "Plant Species & Locations, GRKO Database, Final Inventory" (Missoula: University of Montana, Division of Biological Sciences, June 3, 2003).
[4] Montana Department of Agriculture, Noxious Weed Program, "Noxious Weeds," (Boulder, MT: Pamphlet distributed by the Jefferson County Weed District, no date).

Land Use
[see Map EC-30 at the end of this section]

Approximately 235 acres of the upland pasture area are used for grazing. The remaining 177 acres is used for hay production, which is typically harvested in the late summer/early fall. This number fluctuates annually (more irrigated fields can be used for grazing, if necessary), based upon the ranch's needs for hay and the number of cattle maintained on the land. The hay land is typically grazed after harvest.

Constructed Water Features
[see Map EC-29 at the end of this section]

There are several constructed water features in the Upland Pasture which are used to irrigate the hayfields located in this area. As with the Pasture/Hayfield component landscape, a complex system of ditches can be found in this area.

The **Westside Ditch** (see Photo 3-6-7), which gets its water from Lost Creek (further to the south of the ranch), provides irrigation to Big Gulch, Little Gulch, and part of Lower Taylor Field.

The **Hartz Ditch**, which is located in the southwestern corner of the upland pasture, derives its water from Lost Creek (further south of the ranch) and provides irrigation to Upper Taylor Field.

The **Salmonson Waste Ditch** is located along the southeastern portion of the upland pasture. Its water source is Taylor Creek. This ditch no longer appears to be in use, as the majority of its length has been consumed by the residential expansion of Deer Lodge.

Taylor Creek provides water to four independent ditches, each controlled by its own headgate. These ditches are located in the Taylor Fields to provide irrigation for hay cultivation.

A **mainline with risers system**, installed by the NPS in 1995, is located to the west of Kohrs Ditch Road. It starts at the West Side Ditch, midway up Big Gulch. It runs down the south side of the gulch and terminates at the bottom. It is fed by a headgate to an underground line with risers and ends at the bottom of Big Gulch, approximately 250 feet west of the road.[5] This line replaced a historic ditch that frequently washed out.

As with the other hay fields located throughout the Grant-Kohrs Ranch NHS, there are a variety of different types of head gates, distribution gates, diversion dams, and culverts. Refer to the Pasture/Hayfields component landscape section for more detailed descriptions of these features.

Circulation
[see Map EC-31 at the end of this section]

The Upland Pasture area is accessed through a network of very informal and poorly defined dirt/grass roads (see Photo 3-6-8). These generally follow the edge of the foothills that divide the grazing areas from the hayfields.

Two entrances to the park boundary are accessed from the **Kohrs Ditch Road**, which defines the eastern edge of the Upland Pasture area (see Photo-3-6-9). One of these entrances is the **Gravel Pit Road**, which traverses the southern edge of the Gravel Pit Range, and continues north until

[5] NPS comments, 75% draft CLR review.

terminating at Big Gulch Road. **Big Gulch Road** travels east-west along the south edge of this hay field until connecting back to the Kohrs Ditch Road.

Upland Pasture Road connects the Kohrs Ditch Road with **MTSR 4691** by traversing along the edge of the Upper Northwest Range and Taylor Ridge Range. **Ridge Road** and **Little Gulch Road** traverse east-west through the topographical features that bear their name. Both of these roads connect Gravel Road with the Kohrs Ditch Road.

Views and Vistas
[see Map EC-31 at the end of this section]

Views within the Upland Pasture are oriented towards the east and south, where the lower topography of the gulches and Taylor Fields provide sweeping middle ground views of the Western Hay Fields and the Clark Fork River and riparian area. Distant views of the Home Ranch Complex, Deer Lodge, and Hillcrest Cemetery are also noteworthy (see Photos 3-6-5 and 3-6-10). From the higher elevations, one can also gain views to Deer Lodge Mountain and Mount Powell.

Buildings and Structures
There are no buildings or structures located within the Upland Pasture.

Objects and Small-scale Features
[see Map EC-32 at the end of this section]

The Upland Pasture is used to graze cattle, and fences in this area support this use. Fences made of posts, barbed wire, and electrified wire help to separate pastures and prevent animals from overrunning the fences.

The **Metal Post and Barbed Wire fence** is most prevalent, while the **Wood Post and Barbed Wire fence** is also often seen. These fences consist of thin metal posts or round wood posts, both milled and un-milled, supporting five (sometimes six) strands of barbed wire. Often times, this fence is referred to as "NPS Cross Fence." This name is more associated with its function than its design or materials, and refers to fencing that is used to sub-divide a large field or pasture; it can also be used as a boundary fence.

An **Electric Fence,** (see Photo 3-6-11) stretches through the western portion of the pasture. The fence consists of three strands of electrified wire supported by round, milled posts. Short, narrow, wooden posts are located between each larger post to prevent the wire from sagging.

A short section of **5-rail Locked-End fence,** (see Photo 3-6-12) is found near the southeast corner of the pasture. Approximately 25 feet in length, the fence consists of 5 horizontal split-log rails supported by wood poles. Two more split-log rails are located on the opposite side of the fence, near the bottom, as rubrails to prevent cattle from rubbing on rails and pushing them off.

Wire Gates in the pasture are simple devices consisting of four to five thin, round, wood posts supporting six strands of barbed wire, (see Photo 3-6-13). The wire gate is stretched across the road--one end tied permanently to the fence post to act as a hinge; the other end is hooked at the top and bottom for easy opening and closing.

Missing & Archeological Resources
[see Map EC-32 at the end of this section]

The upland pasture contains several archeological features. These include the remnants of the Kading Homestead, which consists of rock wall building foundations and cultural vegetation (see Photo 3-6-2), mining excavation sites (see Photo 3-6-14), and another foundation believed to be an old pig farm (see Photo 3-6-15).

A dump site is also located in this landscape. It includes several rock piles, as well as a light concentration of domestic trash (see Photo 3-6-16).

JMA, October 2002

Photo 3-6-1 : (N-11) Much of the dry upland pasture has been used for grazing, and therefore retains much of the character of natural grassland communities.

JMA, October 2002

Photo 3-6-2 : (O-18) A cluster of mature apple trees mark the site of the old Kading homestead.

JMA, October 2002

Photo 3-6-3 : (P-2) Row of cottonwoods along Taylor Creek. MTSR 4691 on right with views to Deer Lodge.

JMA, October 2002

Photo 3-6-4 : (O-03) Big Gulch.

JMA, October 2002

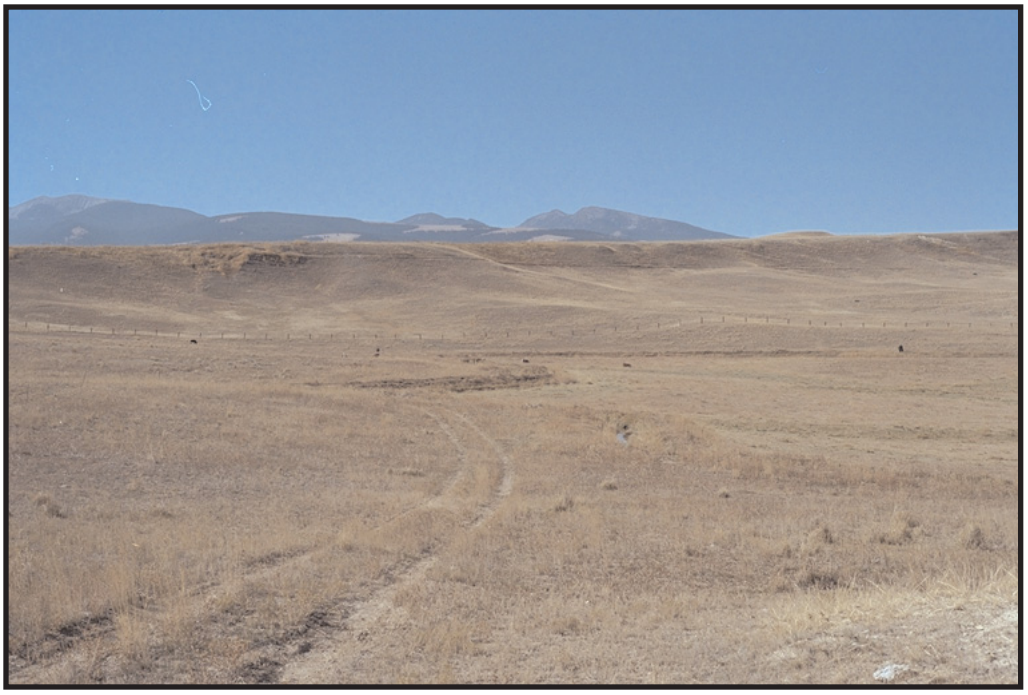
Photo 3-6-5 : (O-16) Little Gulch with views toward ranch.

JMA, October 2002

Photo 3-6-6 : (P-03) Taylor Fields.

JMA, October 2002

Photo 3-6-7 : (N-19) Westside Ditch.



JMA, October 2002

Photo 3-6-8 : (N-22) The Upland Pasture area is accessed through a network of very informal and poorly defined dirt/grass roads.

JMA, October 2002

Photo 3-6-9 : (P-06) Kohrs “Big” Ditch Road.

JMA, October 2002

Photo 3-6-10 : (0-17) Views of Hillcrest Cemetery.

JMA, October 2002

Photo 3-6-11 : (N-16) Electric Fence.

JMA, October 2002

Photo 3-6-12 : (P-05) 5-Rail Locked-End Fence. Views of Deer Lodge in background.

JMA, October 2002

Photo 3-6-13 : (N-01) Wire Gate.

JMA, October 2002

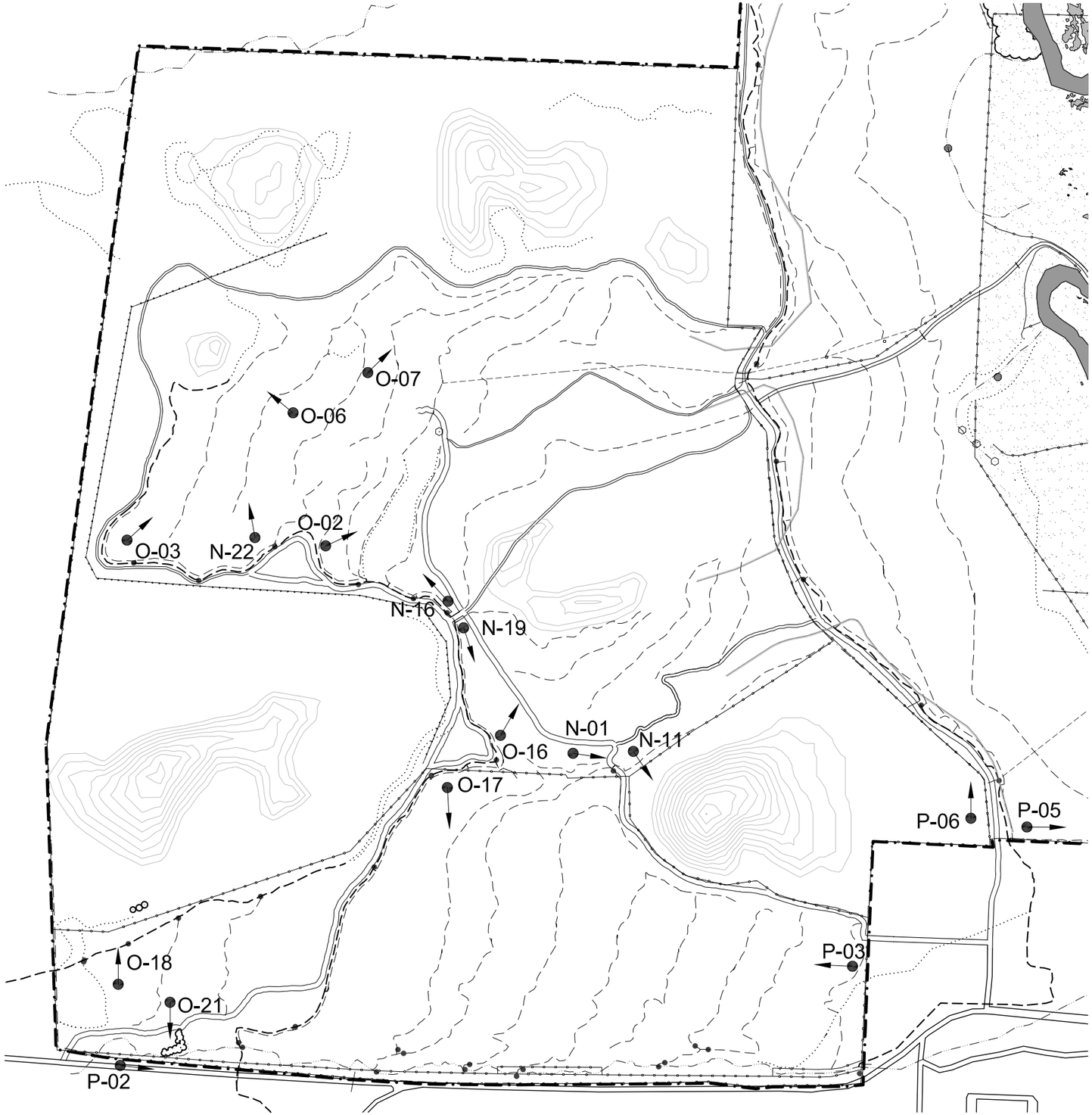
Photo 3-6-14 : (O-2) Mining excavations.

JMA, October 2002

Photo 3-6-15 : (O-6) Pig Farm Foundations.

JMA, October 2002

Photo 3-6-16 : (O-7) Dump site.



Legend:

- Roads
- Railroad
- Lateral Ditches
- Vegetation
- Buildings/ Structures
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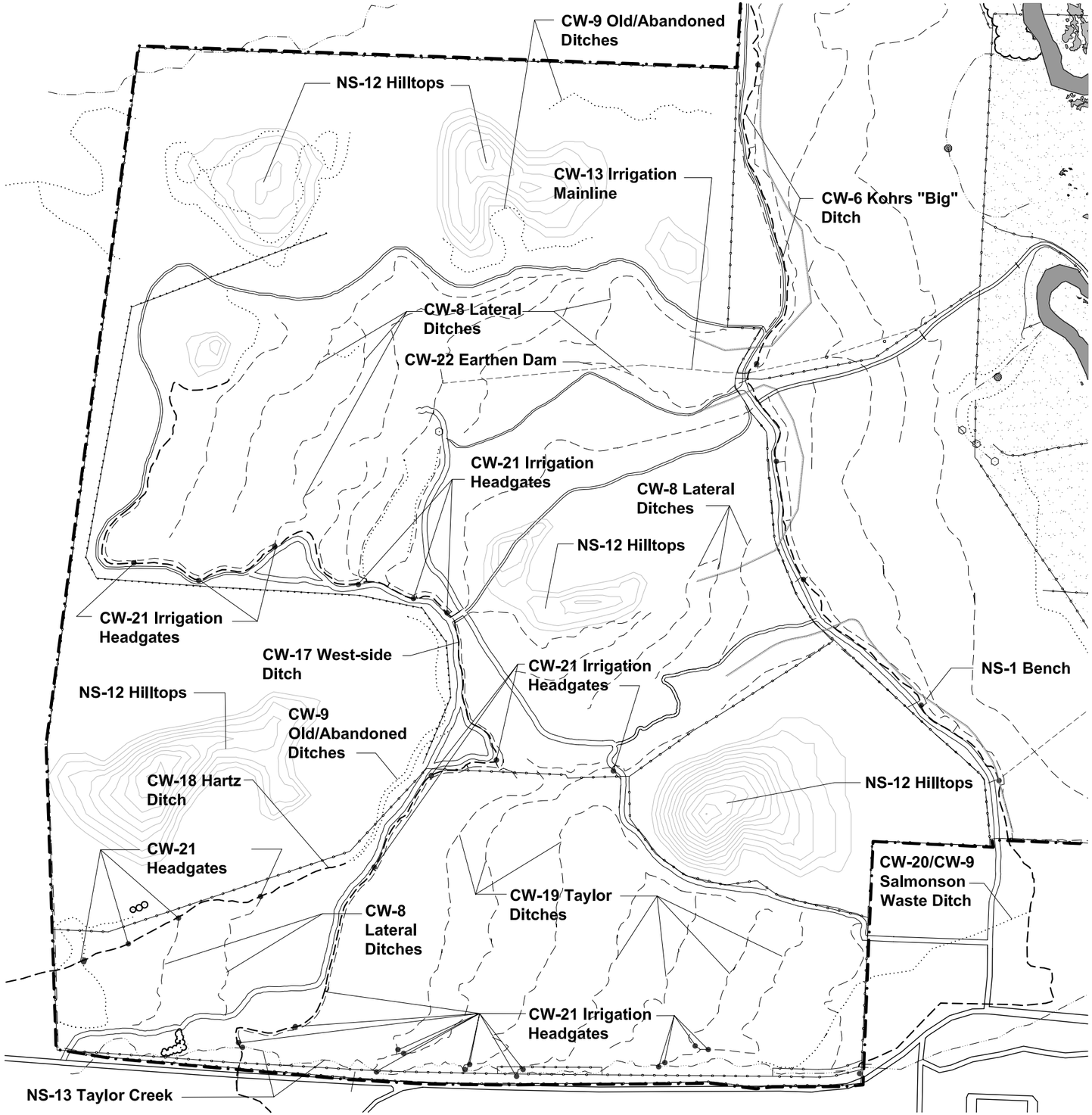
- Bench
- Springs
- GRKO Boundary Line
- Fences
- Old Ditches
- Beaver Lodges
- Streams/Sloughs
- Main Ditches

Scale: 1" = 600'

Map Sources: Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

The following data was provided by the National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program (shapefile format), which was compiled 1998 and updated/field-checked by OCULUS/JMA during the October 2002 site visit: fences and gates; boundary lines; utility lines; fire hydrants; irrigation ditches, headgates, pipes, and risers; culverts; river boundaries; roads; railroad tracks; unvegetated slickens and tailings; fields; trails; cottonwood trees; beaver lodges and dams; hydrology; and groundwater monitoring wells. Metadata for this data is avaliable from World Wide Web: [http://www.nps.gov/gis/metadata/grko/]. Wetlands, hypsography (topography), and Montana 1:24,000 scale State Plane DRG quadrangles were derived from Montana State Library Natural Resource Information System, metadata available from: [http://nris.state.mt.us/gis/datalist.html].

A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: ADF TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. P-8	EXISTING CONDITIONS INVENTORY UPLAND PASTURE **PHOTO STATION POINT MAP** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



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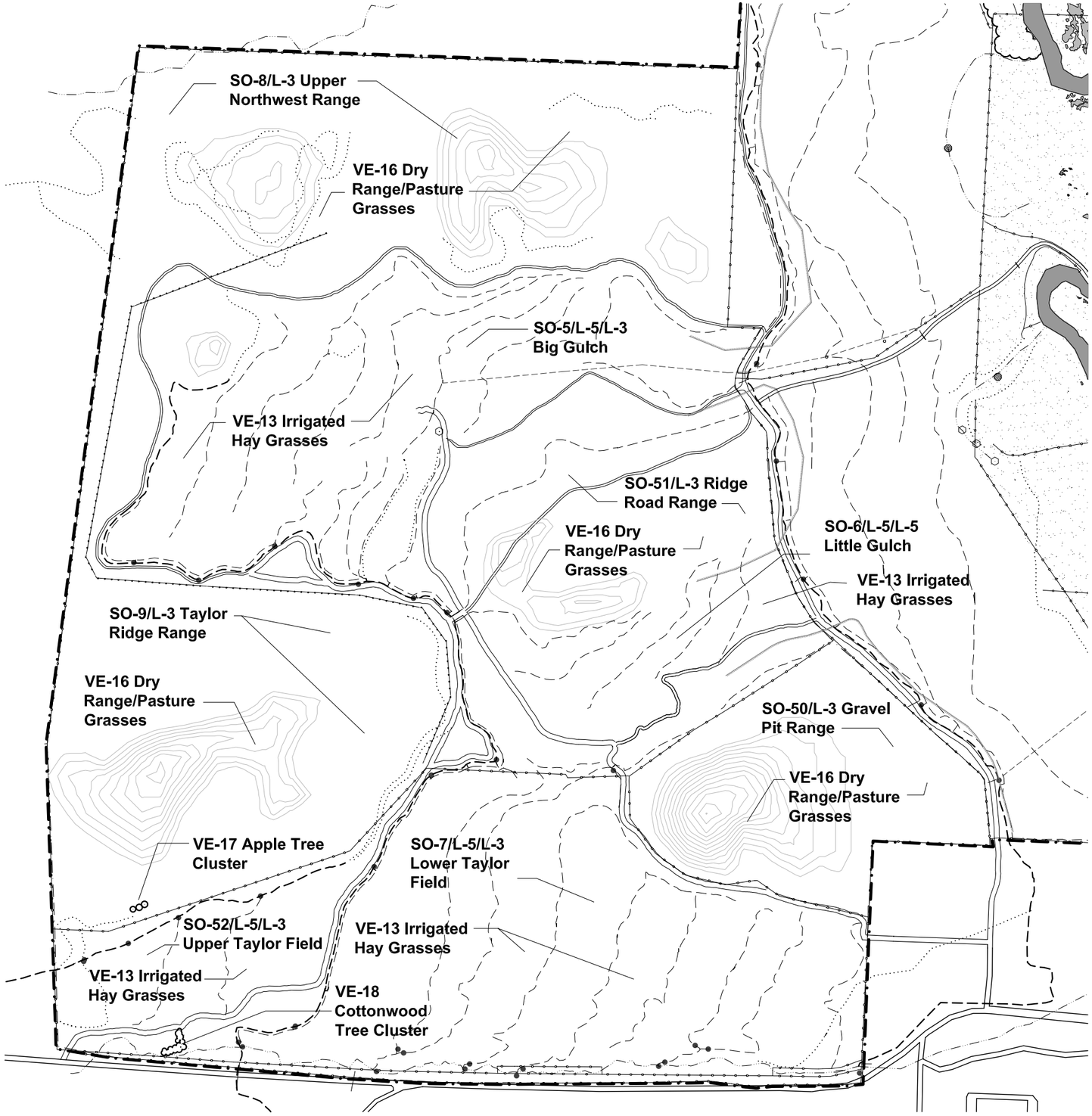
A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Millner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-29	EXISTING CONDITIONS INVENTORY UPLAND PASTURE NATURAL SYSTEMS AND CONSTRUCTED WATER FEATURES GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



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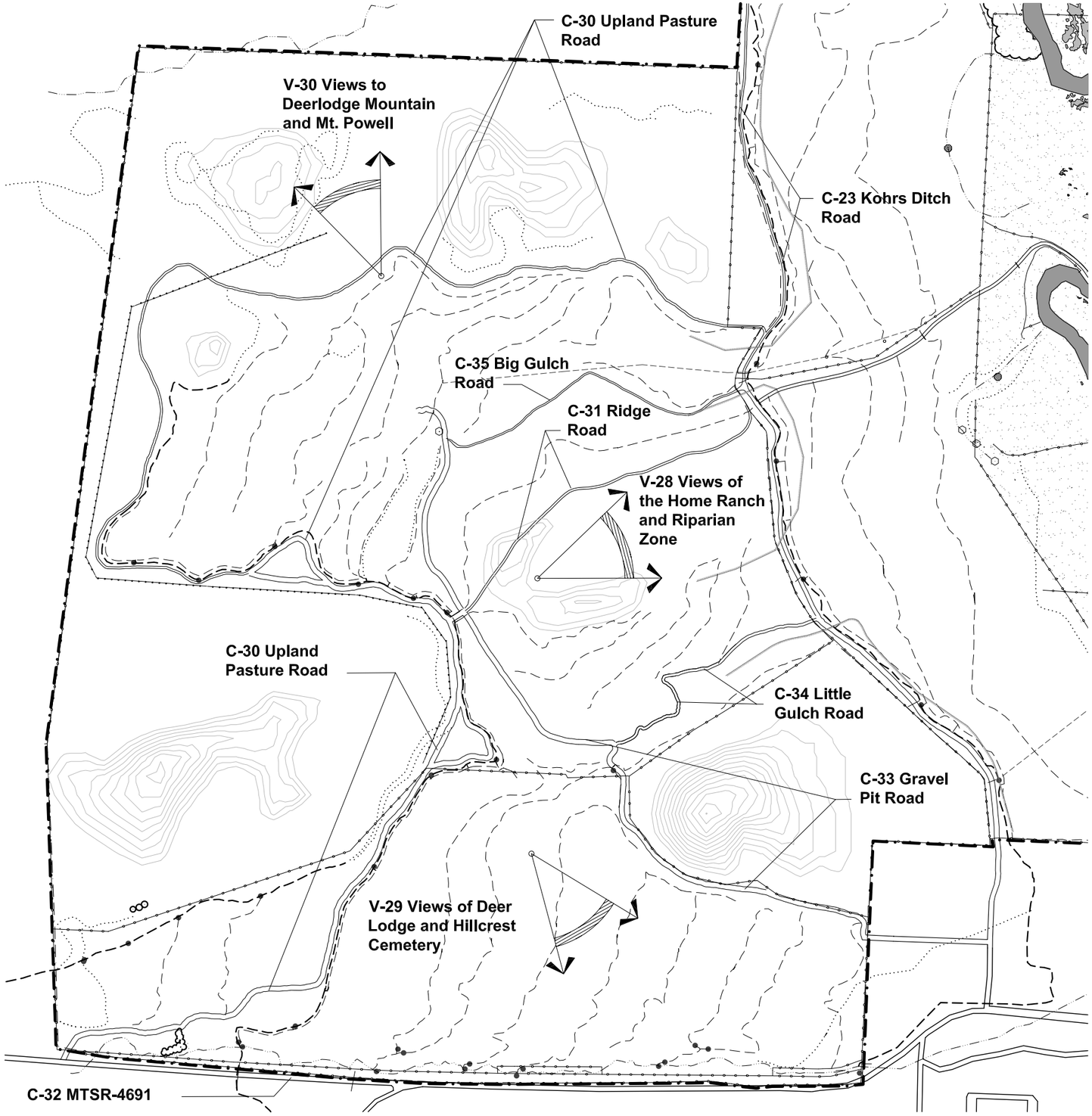
A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED: DRAWN: JLB, WMW TECH. REVIEW: KLS, RMM DATE: JULY 2004	SUB SHEET NO. EC-30	EXISTING CONDITIONS INVENTORY UPLAND PASTURE **VEGETATION, SPATIAL ORGANIZATION, AND LAND USE** GRANT-KOHRS RANCH NATIONAL HISTORIC SITE	DRAWING NO. PKG. NO. SHEET OF



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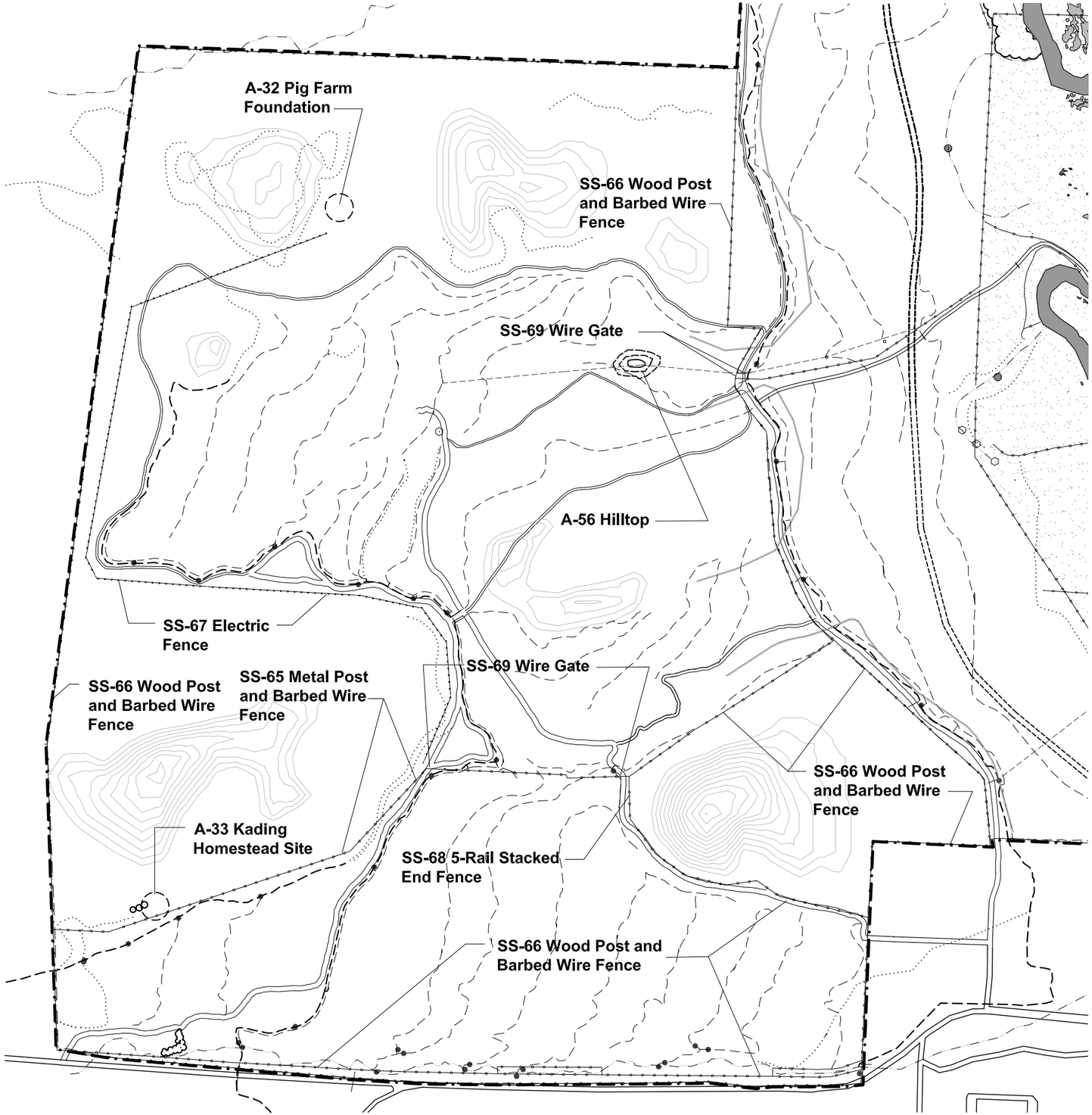

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Scale: 1" = 600'

Map Sources: U. S. Surveyor's General Office. Plat of Township 8 North, Range 9 West of the Principal Meridian, Montana. W. W. Johnson, October 1868. Billings: Bureau of Land Management; historic aerial photographs (various), on file at Grant-Kohrs Ranch National Historic Site archives. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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